Assessing Research Environment in the RAE: Evidence from the UK REF

Matthew Inglis

Centre for Early Mathematics Learning

Loughborough University

Centre for Mathematical Cognition

Joint work with Lizzie Gadd and Liz Stokoe

REF2021 Environment

- Panels tried to assess each submission's **"environment for research and enabling impact"**.
- Especially it's **vitality** ("the extent to which a unit supports a thriving and inclusive research culture for all staff and research students, that is based on a clearly articulated strategy for research and enabling its impact, is engaged with the national and international research and user communities and is able to attract excellent postgraduate and postdoctoral researchers")
- And **sustainability** ("the extent to which the research environment ensures the future health, diversity, wellbeing and wider contribution of the unit and the discipline(s), including investment in people and in infrastructure").

RAE2026 Environment

"one unit-of-assessment-level environment overview statement describing the research and impact strategy(ies); research integrity, research ethics and research culture; support for research staff and students; research income, infrastructure and facilities; research collaborations, esteem and wider contributions to the discipline or research base, etc. of the administrative units containing the staff in the submitting unit of assessment during the assessment period"

REF2021 Environ Components

Metrics:

- FTE staff
- Research income (split by source and year)
- Number of PhD graduates

Environment statement:

- Narrative account of the unit’s environment

Background

- I was responsible for writing Loughborough's environment return for the education UoA in 2014 and 2021.
- Me and my colleagues spent a long time discussing how to write good environment statements. Almost all of these discussions were based on intuition. Not an evidence-based approach.
- After the 2021 submission I got interested in whether we could do better than that.
- Are there systematic factors which can predict whether a research environment would receive high scores from the reviewers?

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Article

What is a high-quality research environment? Evidence from the UK's research excellence framework

Matthew Inglis [1,*], Elizabeth Gadd[2] and Elizabeth Stokoe[3]

[1]Centre for Mathematical Cognition, Loughborough University, Loughborough LE11 3TU, United Kingdom
[2]Research & Innovation Office, Loughborough University, Loughborough LE11 3TU, United Kingdom
[3]Department of Psychological and Behavioural Science, The London School of Economics and Political Science, London WC2A 2AE, United Kingdom

*Corresponding author. Email: m.j.inglis@lboro.ac.uk

Abstract

As part of the UK university sector's performance-related research funding model, the 'REF' (Research Excellence Framework), each discipline-derived 'Unit of Assessment' must submit a statement to provide information about their environment, culture, and strategy for enabling research and impact. Our aim in this paper is to identify the topics on which these statements focus, and how topic variation predicts funding-relevant research environment quality profiles. Using latent Dirichlet allocation topic modelling, we analysed all 1888 disciplinary 'unit-level' environment statements from REF2021. Our model identified eight topics which collectively predicted a surprisingly large proportion—58.9%—of the variance in units' environment scores, indicating that the way in which statements were written contributed substantially to the perceived quality of a unit's research environment. Assessing research environments will increase in importance in the next REF exercise and the insights found through our analysis may support reflection and discussion about what it means to have a high-quality research environment.

Keywords: research evaluation; research policy; research excellence framework; universities; research culture; research environment.

The research excellence framework

For the past four decades, higher education institutions in the UK have been subject to evaluations of their research by the higher education funding councils. The first evaluation, the 'Research Selectivity Exercise (RSE)' took place in 1986 (for

see Sivertsen 2017; Thomas et al. 2020; Pinar and Horne 2022). Either way, the discourse of the RAE/REF reaches far beyond the UK.

Analysing the research excellence framework

Unsurprisingly, the RAE/REF has been scrutinized in terms of

	A	B	C	D	
1	Institution UKPRN code	Institution name	Main panel	Unit of assessment number	Unive
2	10003645	King's College London	A	4	King's Coll
3	10007784	University College London	C	23	University Co
4	10007157	The University of Sheffield	B	12	The Universit
5	10007768	The University of Lancaster	C	17	The University
6	10007790	University of Edinburgh	A	4	University c
7	10007814	Cardiff University / Prifysgol Caerdydd	C	17	Cardiff University /
8	10007157	The University of Sheffield	A	3	The Universi
9	10007790	University of Edinburgh	A	5	University c
10	10007814	Cardiff University / Prifysgol Caerdydd	A	4	Cardiff University /

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I7

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	
1	Institution UKPRN code	Institution name	Main panel	Unit of assessment num	University_UoA	Unit of assessment name	Multiple	Joint submission		TotalPhDs	PhDs PerFTE	TotalIncome	IncomePerFTE	FTE	env4*	env3*	env2*	env1*	env0*	FTEpercent	envGPA	ZPhDsPer	ZIncomePe	ZFTE	ZFTEperce	ZenvGPA	Check	Textfile
2	10007803	University of St Andrews	C	16	Universit	Economics and Econometrics				18.80	0.80	1961704	83834	23.4	0	87.5	12.5	0	0	100	2.875	-1.02307	-0.60365	-0.90487	-0.18516	-0.96009	0	Unitenvironme
3	10000163	AECC University College	A	3	AECC Un	Allied Health Professions, Dentis				0.00	0.00	202000	26234	7.7	0	0	25	75	0	20	1.25	-0.54619	-0.97735	-1.12651	-1.17455	-2.20278	0	Unitenvironme
4	10000291	Anglia Ruskin University Higl	A	3	Anglia R	Allied Health Professions, Dentis				69.00	1.36	22195088	436053	50.9	0	100	0	0	0	25	3	-0.18189	-0.25226	-0.03789	-1.03223	0.04769	0	Unitenvironme
5	10000291	Anglia Ruskin University Higl	A	4	Anglia R	Psychology, Psychiatry and Neurc				15.00	0.52	1594980	55381	28.8	0	37.5	62.5	0	0	90	2.375	-0.81203	-0.59531	-0.26573	0.16345	-0.36126	0	Unitenvironme
6	10000291	Anglia Ruskin University Higl	B	12	Anglia R	Engineering				34.00	2.18	6362438	407849	15.6	0	0	87.5	12.5	0	50	1.875	-0.13866	-0.63579	-0.80686	-1.34888	-1.04534	0	Unitenvironme
7	10000291	Anglia Ruskin University Higl	C	13	Anglia R	Architecture, Built Environment				17.00	0.89	9627090	506689	19	0	100	0	0	0	55	3	-0.73998	0.37375	-0.46173	-0.90915	-0.25074	0	Unitenvironme
8	10000291	Anglia Ruskin University Higl	C	14	Anglia R	Geography and Environmental St				14.00	0.68	8848620	427470	20.7	0	75	25	0	0	75	2.75	-0.95347	-0.20258	-0.62239	-2.04727	-0.19051	0	Unitenvironme
9	10000291	Anglia Ruskin University Higl	C	17	Anglia R	Business and Management Studi				67.00	3.87	4165768	240796	17.3	12.5	75	12.5	0	0	30	3	1.20227	0.70216	-0.96309	-1.29981	0.24718	0	Unitenvironme
10	10000291	Anglia Ruskin University Higl	C	18	Anglia R	Law				21.00	2.63	146068	18259	8	0	0	62.5	37.5	0	50	1.625	2.30356	-0.86227	-1.09167	-1.41107	-1.49415	0	Unitenvironme
11	10000291	Anglia Ruskin University Higl	C	20	Anglia R	Social Work and Social Policy				30.00	1.93	6339118	408712	15.51	12.5	62.5	25	0	0	55	2.875	0.83898	0.37111	-0.67394	-0.77033	0.07722	0	Unitenvironme
12	10000291	Anglia Ruskin University Higl	C	21	Anglia R	Sociology				18.00	1.38	716114	55086	13	0	0	75	25	0	50	1.75	-0.26131	-0.94579	-1.00671	-2.96423	-1.10376	0	Unitenvironme
13	10000291	Anglia Ruskin University Higl	C	23	Anglia R	Education				36.00	4.80	1125142	150019	7.5	0	25	62.5	12.5	0	25	2.125	0.81178	-0.32563	-0.51610	-0.68344	-0.32516	0	Unitenvironme
14	10000291	Anglia Ruskin University Higl	C	24	Anglia R	Sport and Exercise Sciences, Leis				5.00	0.42	246298	20525	12	0	12.5	87.5	0	0	75	2.125	-1.04492	-0.60785	-0.65511	-0.05112	-0.79687	0	Unitenvironme
15	10000291	Anglia Ruskin University Higl	D	27	Anglia R	English Language and Literature				37.00	2.28	806296	49771	16.2	15	85	0	0	0	80	3.15	0.81037	-0.31647	-0.62561	-0.92794	0.00536	0	Unitenvironme
16	10000291	Anglia Ruskin University Higl	D	28	Anglia R	History				5.00	1.00	152830	30566	5	12.5	47.5	40	0	0	70	2.725	-0.47048	-0.91883	-0.89844	-2.35355	-0.49274	0	Unitenvironme
17	10000291	Anglia Ruskin University Higl	D	32	Anglia R	Art and Design: History, Practice				16.00	0.96	77234	4625	16.7	0	55	45	0	0	45	2.55	-0.29020	-0.90879	-0.45281	-0.79438	-0.90334	0	Unitenvironme
18	10000291	Anglia Ruskin University Higl	D	33	Anglia R	Music, Drama, Dance, Performin				21.00	2.62	1904716	237792	8.01	47.5	52.5	0	0	0	50	3.475	1.05054	1.13282	-1.24606	-1.41972	0.52403	0	Unitenvironme
19	10000291	Anglia Ruskin University Higl	D	34	Anglia R	Communication, Cultural and Me				14.00	2.80	211612	42322	5	40	50	10	0	0	85	3.3	1.71315	-0.63759	-1.30057	0.34780	0.46543	0	Unitenvironme
20	10000385	Arts University Bournemouth	D	32	Arts Univ	Art and Design: History, Practice				3.00	0.10	522540	17517	29.83	0	52.5	47.5	0	0	45	2.525	-1.09421	-0.83483	-0.01617	-0.79438	-0.94199	0	Unitenvironme
21	10000385	Arts University Bournemouth	D	33	Arts Univ	Music, Drama, Dance, Performin				1.00	0.06	2800	181	15.5	0	52.5	47.5	0	0	25	2.525	-1.46765	-1.03462	-0.32421	-2.39563	-0.89111	0	Unitenvironme
22	10000571	Bath Spa University	A	4	Bath Spa	Psychology, Psychiatry and Neurc				2.50	0.14	808000	43676	18.5	0	0	75	25	0	75	1.75	-1.00747	-0.60887	-0.45270	-0.56039	-1.02263	0	Unitenvironme
23	10000571	Bath Spa University	C	14	Bath Spa	Geography and Environmental St				1.00	0.11	4398000	480656	9.15	0	12.5	75	12.5	0	80	2	-1.62470	-0.06824	-1.20131	-1.54880	-1.17532	0	Unitenvironme
24	10000571	Bath Spa University	C	17	Bath Spa	Business and Management Studi				1.00	0.08	258000	21500	12	0	12.5	62.5	25	0	35	1.875	-0.98624	-0.88707	-1.07878	-1.14951	-1.28316	0	Unitenvironme
25	10000571	Bath Spa University	C	23	Bath Spa	Education				12.50	0.47	4314000	162180	26.6	0	75	25	0	0	30	2.75	-0.87400	-0.28840	0.01316	-0.61172	0.30247	0	Unitenvironme
26	10000571	Bath Spa University	D	27	Bath Spa	English Language and Literature				32.00	0.99	5068000	156662	32.35	12.5	72.5	15	0	0	90	2.975	-0.57051	1.05886	0.16152	-0.28846	-0.28238	0	Unitenvironme
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28	10000571	Bath Spa University	D	32	Bath Spa	Art and Design: History, Practice				15.00	0.59	904000	35591	25.4	0	87.5	12.5	0	0	70	2.875	-0.63480	-0.73115	-0.16349	0.02673	-0.40088	0	Unitenvironme
29	10000571	Bath Spa University	D	33	Bath Spa	Music, Drama, Dance, Performin				10.00	0.43	672000	28841	23.3	0	25	75	0	0	40	2.25	-1.10855	-0.77319	0.63580	-1.81008	-1.30076	0	Unitenvironme
30	10000571	Bath Spa University	D	34	Bath Spa	Communication, Cultural and Me				5.00	0.35	2302000	160979	14.3	0	85	15	0	0	50	2.85	-1.04528	0.21504	-0.60783	-1.02313	-0.21607	0	Unitenvironme
31	10000824	Bournemouth University	A	3	Bournem	Allied Health Professions, Dentis				57.33	0.74	15236564	197033	77.33	12.5	62.5	25	0	0	65	2.875	-0.34695	-0.67516	0.62813	0.10635	-0.11305	0	Unitenvironme
32	10000824	Bournemouth University	A	4	Bournem	Psychology, Psychiatry and Neurc				31.33	0.72	3101346	70969	43.7	0	62.5	37.5	0	0	95	2.625	-0.71266	-0.57724	0.00475	0.40473	-0.09672	0	Unitenvironme
33	10000824	Bournemouth University	B	11	Bournem	Computer Science and Informati				51.00	1.11	8618752	188388	45.75	0	12.5	75	12.5	0	80	2	-0.91587	-0.81109	0.55098	-0.01476	-0.76403	0	Unitenvironme
34	10000824	Bournemouth University	B	12	Bournem	Engineering				32.67	1.69	1926806	99835	19.3	0	0	87.5	12.5	0	90	1.875	-0.49403	-0.91737	-0.76290	0.33015	-1.04534	0	Unitenvironme
35	10000824	Bournemouth University	C	14	Bournem	Geography and Environmental St				57.67	2.01	6103778	212675	28.7	0	75	25	0	0	100	2.75	0.62454	-0.74514	-0.22142	0.44506	-0.19051	0	Unitenvironme
36	10000824	Bournemouth University	C	15	Bournem	Archaeology				21.83	0.92	6891680	291897	23.61	37.5	62.5	0	0	0	95	3.375	-0.93671	-0.77072	0.19885	-0.22615	0.23193	0	Unitenvironme
37	10000824	Bournemouth University	C	17	Bournem	Business and Management Studi				49.83	0.81	2222160	35899	61.9	0	37.5	62.5	0	0	80	2.375	-0.56946	-0.78272	0.01045	0.20318	-0.60301	0	Unitenvironme
38	10000824	Bournemouth University	C	18	Bournem	Law				6.00	0.40	1914312	128048	14.95	0	12.5	62.5	25	0	75	1.875	-1.17356	0.20649	-0.82207	-0.41756	-1.16157	0	Unitenvironme

Sheet1 +

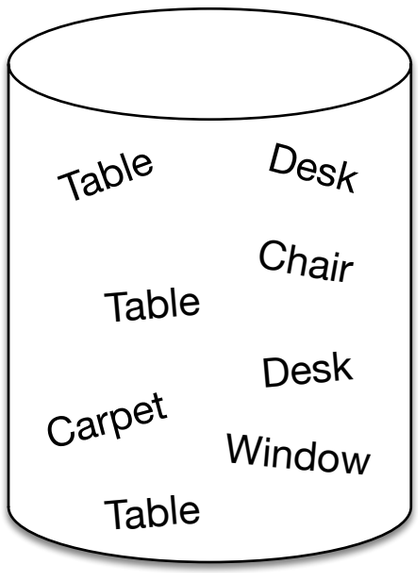
Ready · Accessibility: Good to go · 100%

Topic Modelling

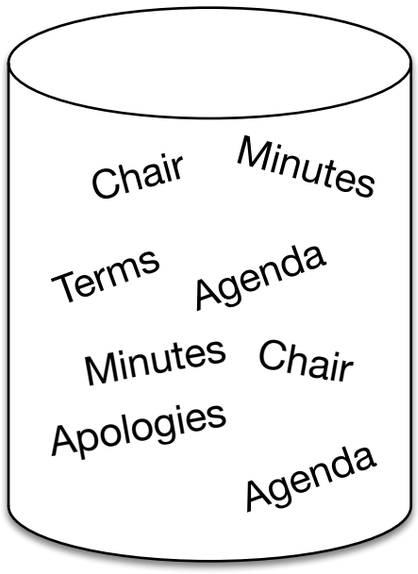
- Suppose you have a large corpus and you want to know what it's about, what can you do?
- A statistical technique called "topic modelling" allows you to discover the main themes that are present in a large unstructured collection of documents (Blei, Ng & Jordan, 2003).
- Can think of it as being a bit like a cluster analysis: entirely data driven.
- Perhaps helpful to think of it as being a statistical version of a grounded theory coding process.

Topic Modelling

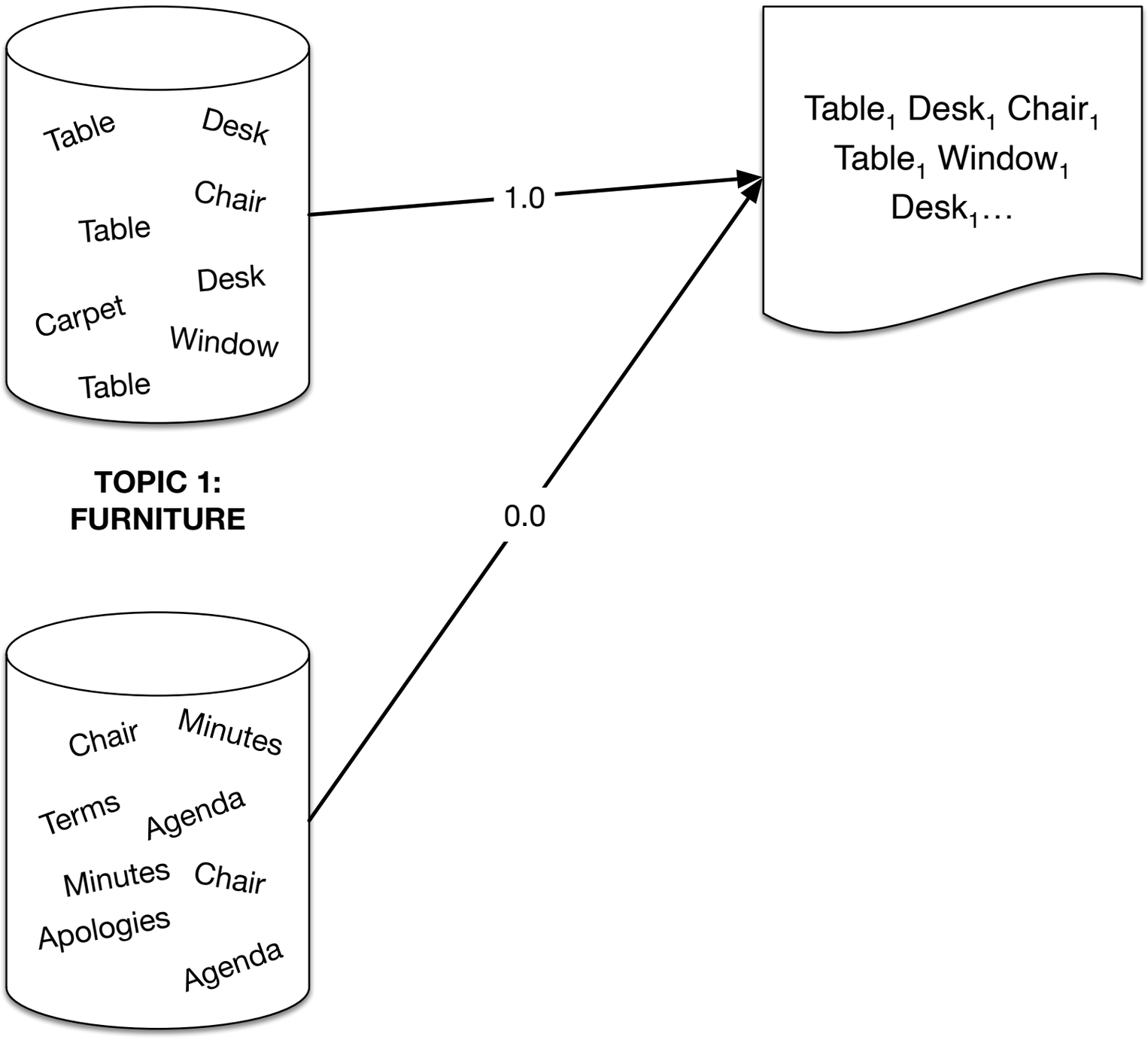
- Imagine you have lots of pre-defined topics (distributions over words).
- You can form a document by:
  1. Selecting a distribution over topics (i.e. this document is made up of 30% Topic 1, 20% Topic 2, 0% Topic 3, etc.)
  2. Then selecting words from that topic (using the topic-level distribution) and making the document.
- Topic modelling does this process in reverse: it starts with the documents, assumes they were created in this way, and works out what topics best fit.



TOPIC 1:
FURNITURE

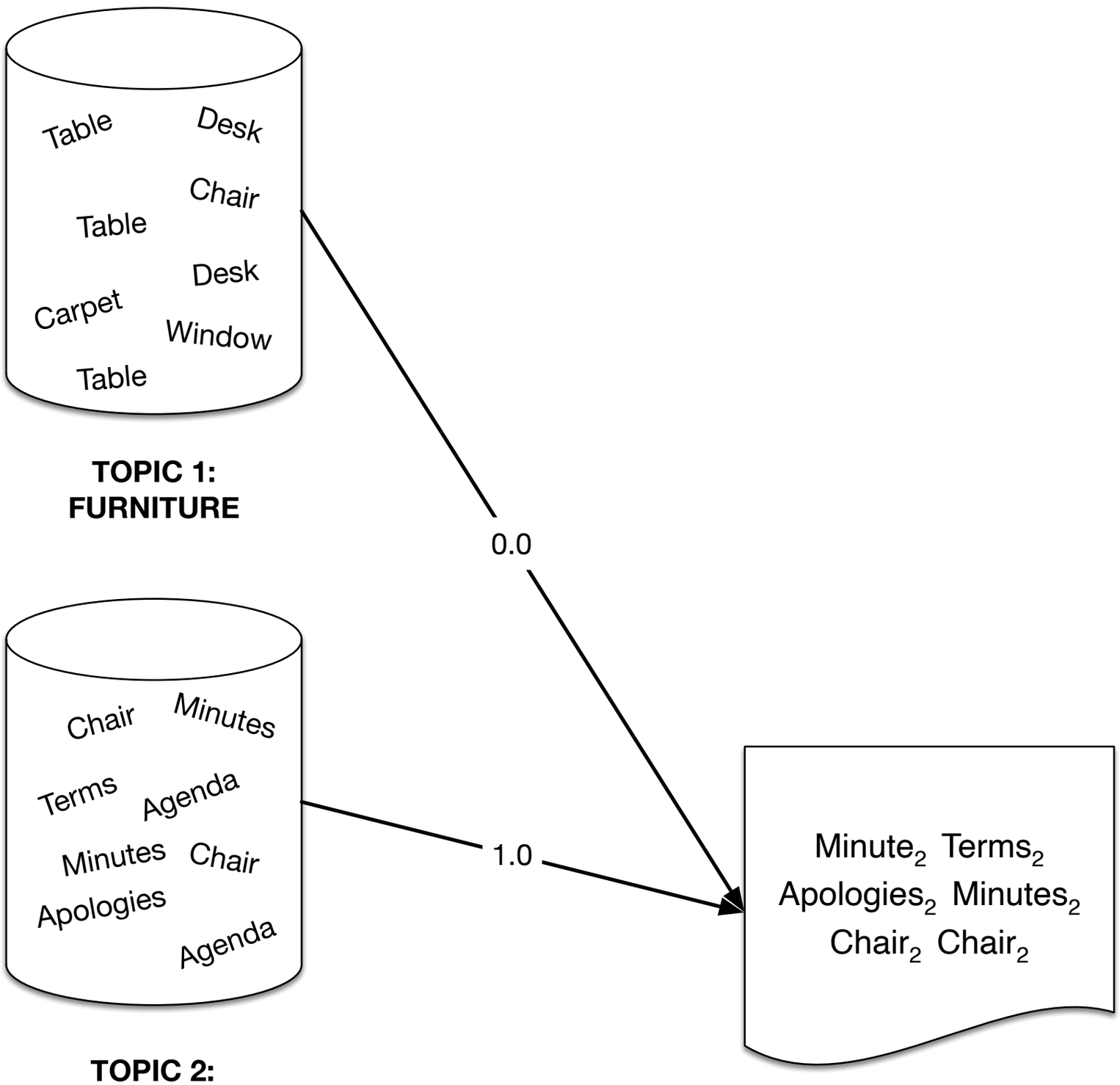


TOPIC 2:
COMMITTEES



TOPIC 1: FURNITURE

TOPIC 2: COMMITTEES



Table
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TOPIC 1:
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TOPIC 2:
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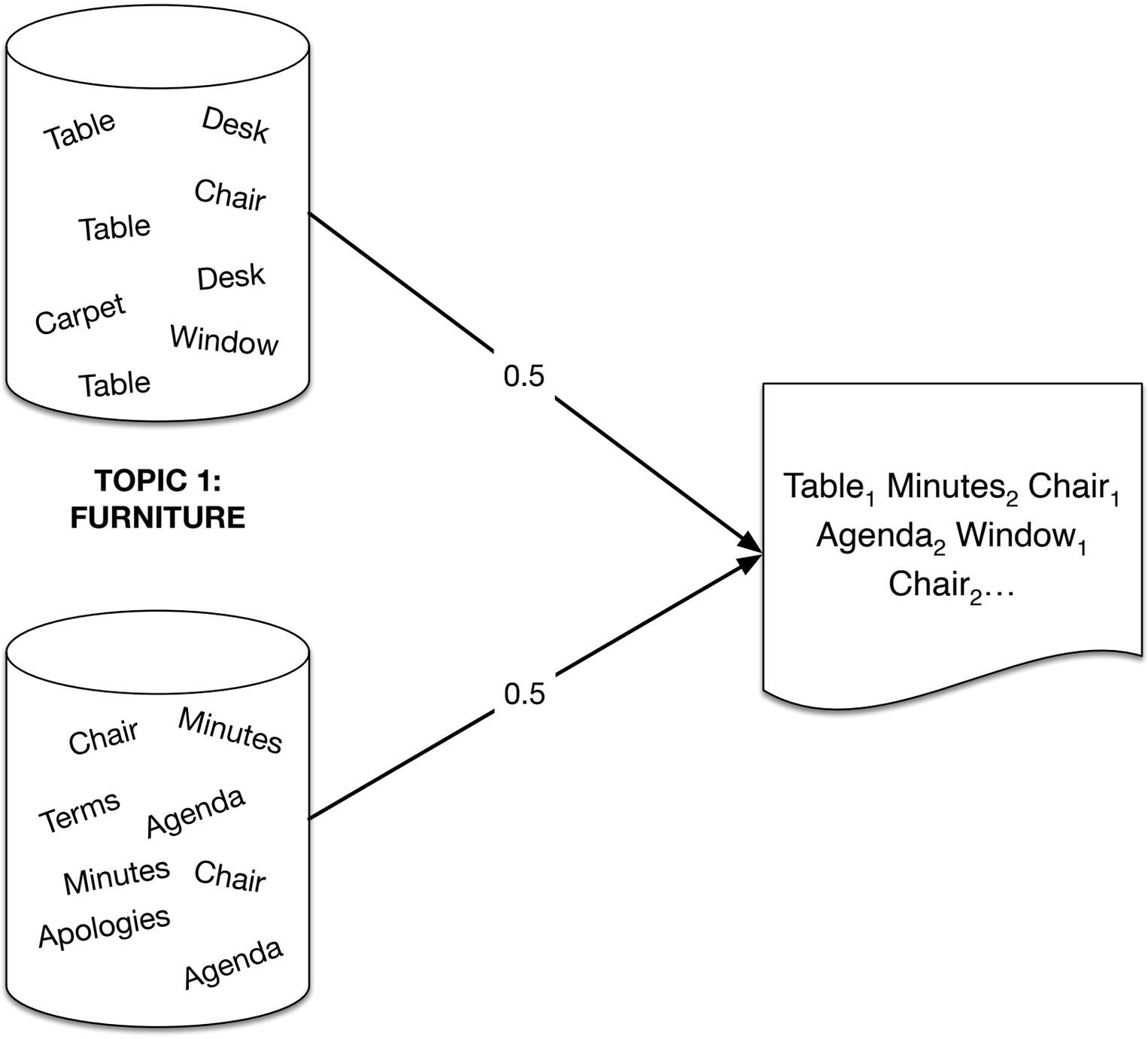
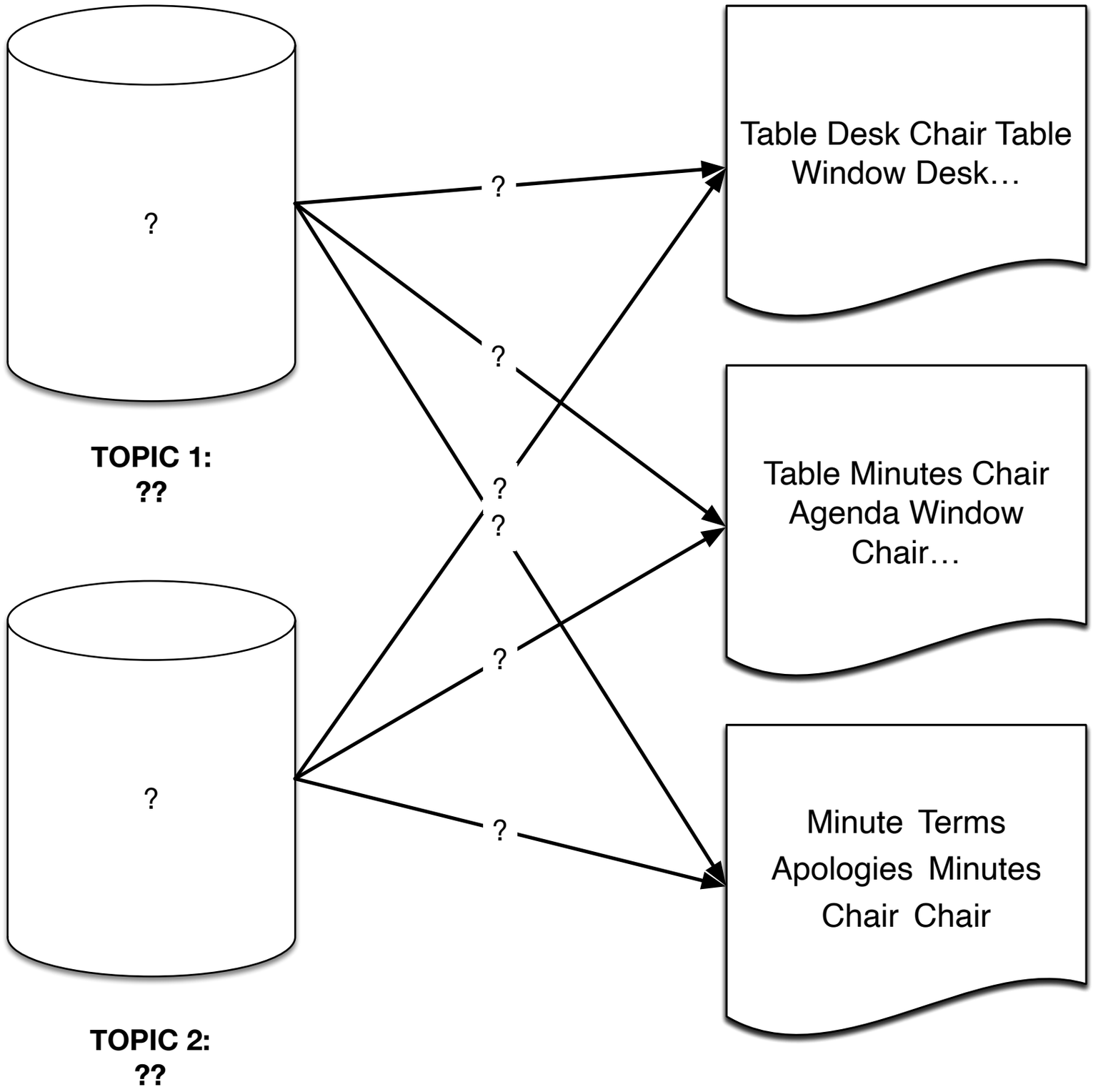
Chair2 Chair2



TOPIC 1: FURNITURE

TOPIC 2: COMMITTEES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Apologies Minutes
Chair Chair
TOPIC 2:
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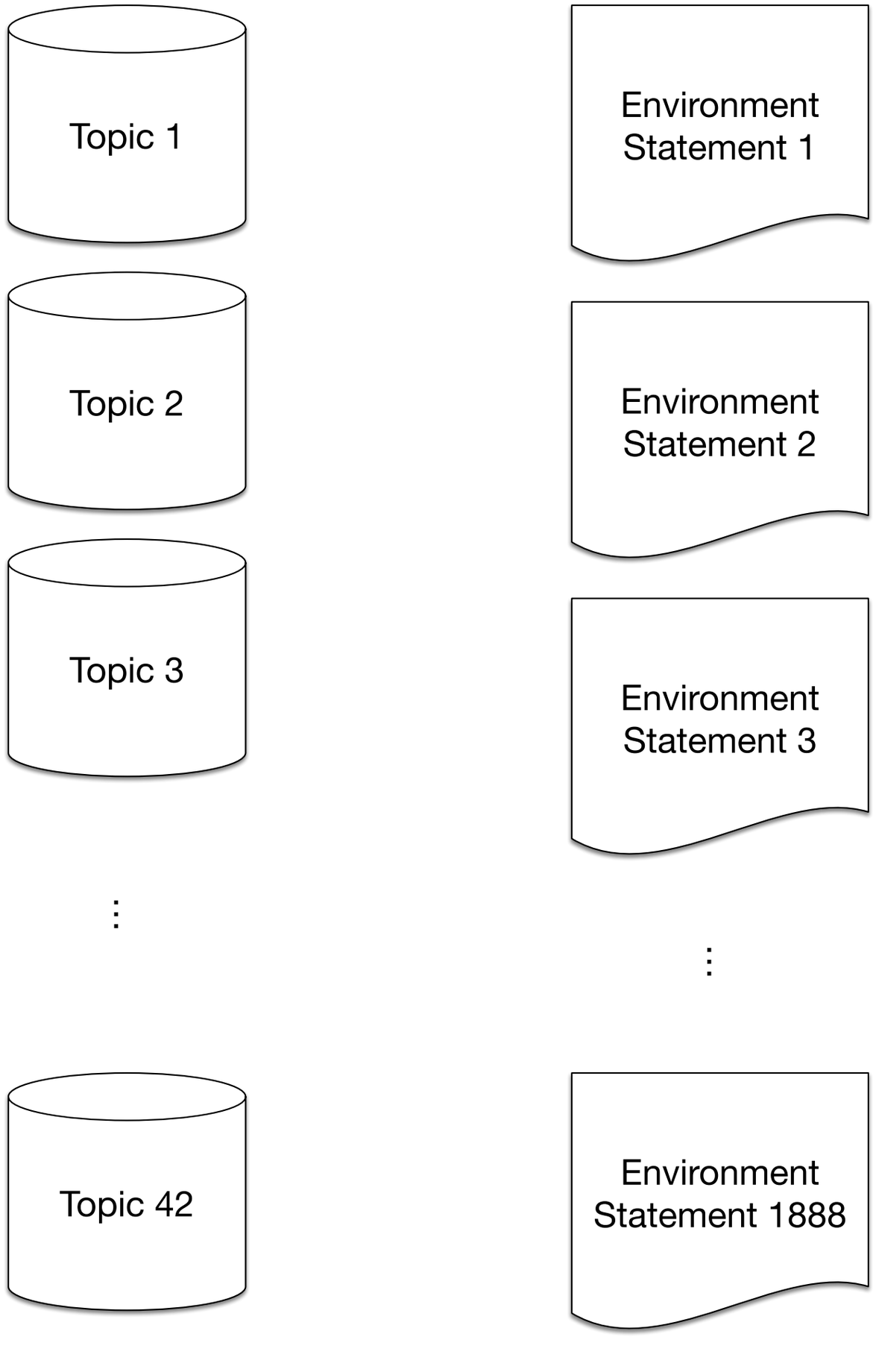

Topic 1
Topic 2
Topic 3
Topic 42
Environment Statement 1
Environment Statement 2
Environment Statement 3
Environment Statement 1888

Topic Modelling

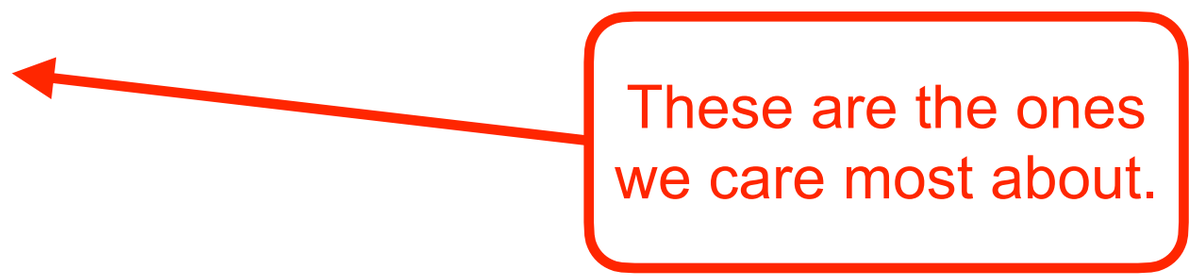
- Relies upon the “bag of words” model of text: the order in which words appear is irrelevant.
- Ignores ‘stop words’: those words which don’t identify a topic (“the”, “a”, “is”, etc.)
- Once you’ve identified your topics you can evaluate the makeup of each document (i.e., Document 3 is 40% Topic 1, 20% Topic 2, 10% Topic 3, etc.)

Topic Modelling REF2021

- We downloaded all 1888 environment statements (all subpanels).
- Converted to plain text.
- Fitted a topic model with 42 topics (chosen using the perplexity method).

The 42 Topics

- 28 disciplinary specific (e.g. a chemistry topic characterised by words such as: *chemistry materials chemical epsrc facilities rsc molecular energy industrial equipment industry group synthesis catalysis analytical facility phd nmr chem spectroscopy*)
- 5 geographical topics (e.g. Scotland, The North, London)
- 1 collegiate university topic (Oxford, Cambridge, London)
- 8 general topics



The 8 General Topics

1. Internal Structure of Research Units
2. Career Development and EDI
3. Immature Research Environment
4. Staff Ways of Working
5. REF-Focused Research Strategy
6. Exemplification of Strategy and Processes
7. Industry Partners and Funding
8. Early Career Researcher Development

The 8 General Topics

- The ‘general character’ of each REF2021 environment statement can be thought of as being a point in 8-dimensional space, defined by the proportion of its words from these eight general topics.
- Will characterise the nature of these topics later.
- First, can we predict how well each statement scored by studying these eight dimensions?
- We used Grade Point Average (0-4) as our dependent measure. Similar results if we used proportion of 4* (“world class”) activity.

Predicting GPAs?

Predictor	Beta	R^2	ΔR^2
Block 1			
Doctoral Degrees per FTE (standardised)	.212***		
Grant Income per FTE (standardised)	.318***		
FTE (standardised)	.394***		
		.473***	.473***

On their own, standardised metrics explain 47% of the variance in GPAs

PAs?

Adding in our eight topic variables explains an extra 22% of the variance in GPAs. Can explain ~70% in total.

Predictor	Beta	R^2	ΔR^2
Doctoral Degrees per [illegible]	.212***		
Grant Income per FTE (standardised)	.318***		
FTE (standardised)	.394***		
		.473***	.473***
Block 2			
Doctoral Degrees per FTE (standardised)	.094***		
Grant Income per FTE (standardised)	.214***		
FTE (standardised)	.201***		
Topic 4 – Internal Structure of Research Units	-.006		
Topic 7 – Career Development and EDI	-.023		
Topic 16 – Immature Research Environment	-.438***		
Topic 18 – Staff Ways of Working	-.057***		
Topic 28 – REF-Focused Research Strategy	[illegible]		
Topic 30 – Exemplification of Strategy and Processes			
Topic 34 – Industry Partners and Funding			
Topic 40 – Early Career Researcher (ECR) Development			

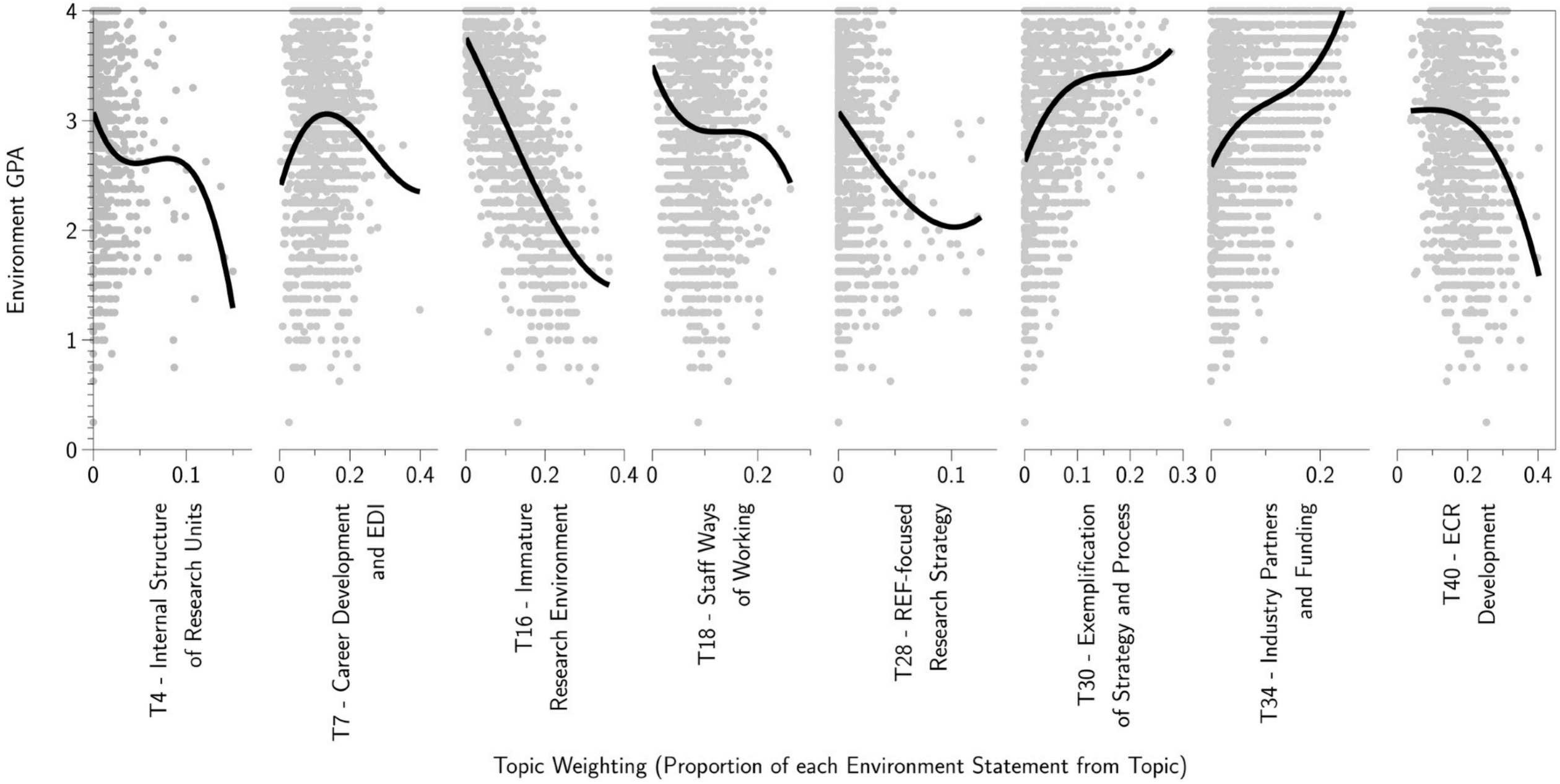
If you put the topic variables in Block 1, without the standardised metrics, they explain 59% of the variance in GPAs.

Predicting (

Some of the topics are positive predictors, some are negative, some aren't predictive.

Predictor	
Block 1	
Doctoral Degrees per FTE (standardised)	.318***
Grant Income per FTE (standardised)	.394***
FTE (standardised)	.473***
	.473***
Block 2	
Doctoral Degrees per FTE (standardised)	.094***
Grant Income per FTE (standardised)	.214***
FTE (standardised)	.201***
Topic 4 – Internal Structure of Research Units	-.006
Topic 7 – Career Development and EDI	-.023
Topic 16 – Immature Research Environment	-.438***
Topic 18 – Staff Ways of Working	-.057***
Topic 28 – REF-Focused Research Strategy	-.054***
Topic 30 – Exemplification of Strategy and Processes	.117***
Topic 34 – Industry Partners and Funding	.068***
Topic 40 – Early Career Researcher (ECR) Development	-.112***
	.691*** .219***

Non-linear Relationships?



The 8 General Topics

1. Internal Structure of Research Units
2. Career Development and EDI
3. Immature Research Environment
4. Staff Ways of Working
5. REF-Focused Research Strategy
6. Exemplification of Strategy and Processes
7. Industry Partners and Funding
8. Early Career Researcher Development

1. Internal Structure of Research Units

- Not a significant predictor of GPA (β = -.006)
- Characterised by lots of descriptions of the internal structure of units.
- Characteristic words: unit, unit's, faculty, selection, theme, themes, institutional.
- For example, the University of Cumbria's Business and Management Studies statement (15% from this topic) used 1.5 pages (of 17) describing how during the REF period they had created a new institute, rebranded a research area and developed three new research themes.

Institution: University of Cumbria

Unit of Assessment: UOA17: Business and Management Studies

1. Unit context and structure, research and impact strategy

1.1 Unit context and structure

Research within this Unit of Assessment (UoA) has high significance for the development of the University of Cumbria (UoC). Created on 1 August 2007, UoC has headquarters in Carlisle, major campuses in Ambleside, Lancaster and London, and a formal presence in Workington and Barrow. Formed with active support from public and private sector partners throughout Cumbria and North Lancashire, it was regarded as a key instrument in the development of the local economy and its skills base. This informs this Unit's vision to: **undertake research that contributes to creation of sustainable economies, regions, places and organisations, for the benefit of society.**

In its first REF submission in 2014, research strengths in Business and Management Studies focused on two very specific and distinct areas that had particular resonance with this vision.

- The first of these has involved research on regional development conducted within the **Centre for Regional Economic Development (CRED).** CRED was first created in 1996 within one of our legacy institutions and has been involved for over 20 years in conducting applied research and consultancy on regional and local development.

- Secondly, UoC made a strategic decision to develop expertise in leadership and sustainability. The **Institute for Leadership and Sustainability (IFLAS)** was created in 2012 and established itself as a global hub of inquiry, teaching and dialogue on enabling the transition to fairer and more sustainable societies. Based in Ambleside, IFLAS activities include conducting action research and advocacy on processes of social, economic and organisational transformation.

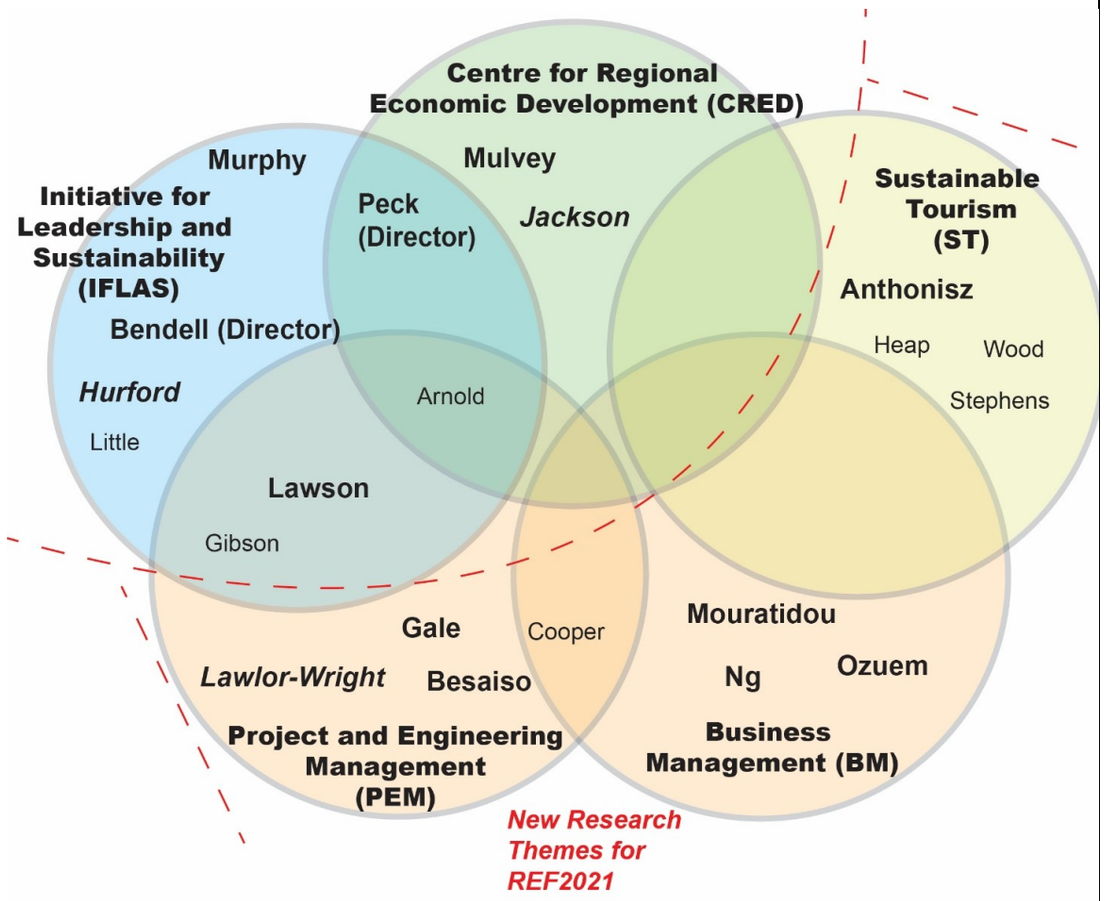
Leading researchers in these two entities (CRED and IFLAS) formed the basis of UoCs REF 2014 submission in Business and Management Studies with 12% assessed at 4* and, and 85% at 2* and above, across 2.8FTE.

In August 2019, the creation of an '**Institute of Business, Industry and Leadership' (IBIL)** reflected signficant portfolio expansion into Project Management, Leadership and Management, Engineering and Technology Management. CRED and IFLAS (the latter rebranded as the *Initiative* for Leadership and Sustainability) continued to operate within IBIL. An important benefit of portfolio expansion has been a broadening of the research base through new staff appointments and staff development. This has enabled this Unit to develop additional research themes in support of its vision, including:

- **Project and Engineering Management (PEM)**
- **Business Management (BM)**
- **Sustainable Tourism (ST)**

Researchers named in **bold** are Category A staff with 'significant responsibility for research' (SRR, see UoC REF2021 Code of Practice, 2.10) and those in **bold** and ***italics*** are individuals who left UoC during the REF assessment period. Individuals in plain are non-submitted UoC staff – including staff with 'emerging responsibility for research' (ERR, see UoC REF2021 Code of Practice, 2.12), Research Assistants (RA), Postgraduate Researchers (PGRs) and honorary/retired staff. Names followed by a number (e.g. **Mulvey1**) cross reference to REF2 outputs.

Fig 1. demonstrates submitted research themes, and the focus of this Unit's Category A/SRR staff, former staff as well as emerging researchers, and visiting staff.



1.2 Expanding and broadening the research base

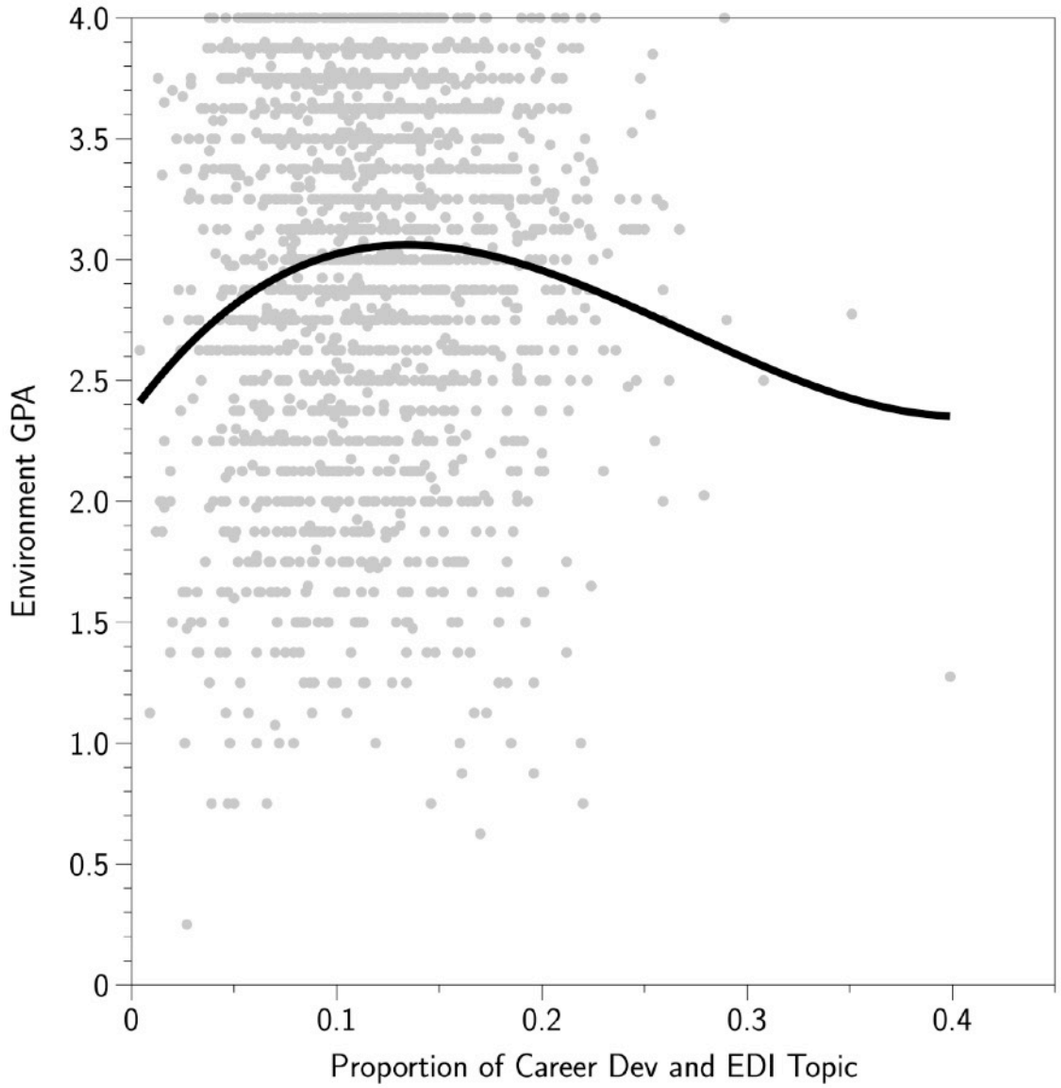
The research strategy since 2014 has focussed on broadening the research base within business and management. Opportunities to achieve this have been associated with curriculum development that has arisen (in many instances) from identified regional business needs, enhanced through our strong relationships with industrial and other stakeholders in the region and beyond, and aligned to our vision. This has contributed to the growth in research themes outlined in Fig 1. Evidence of this strategy's effectiveness includes:

- Growth of the **PEM** theme, linked to institutional delivery of the Project Academy for Sellafield, and an increasing number of industrial partners where UoC is delivering programmes in Project Management (Section 3.2).
- Establishment of the **ST** theme as a result of an institutional decision to offer a new curriculum in tourism and the visitor economy.
- Consolidation of other business related activity into the **BM** theme.

The strategic approach to build research capacity around regional business need has culminated in the launch of the **IBIL Research Strategy (2020)** (see 1.5) which seeks to maximise synergies between new fields of research, this Unit's vision, and IBIL's mission to meet the need for higher level skills development in Cumbria. This approach means that there is a focus on multi-disciplinary applied research that draws insight and understanding of the region's economy from wider engagement with regional partners.

2. Career Development and EDI

- Not a significant linear predictor of GPA (β = -.023), but there was a non-linear relationship.
- Too little associated with low scores, too much associated with low scores.
- Maximum at ~0.13



2. Career Development and EDI

- Characteristic words: staff, support, training, including, access, career, diversity.
- Characterised by long descriptions of how the unit supported staff and research students, analyses of equality and diversity processes.
- Large variation in proportion of returns focused on this topic. From 0.004 to 0.399.
- Example: University of Nottingham's Politics statement (29% of statement from this topic).

Gender

The School employs by FTE 12.8 women (30.4%) and 29.3 men (69.5%) and strives for a balanced workforce as evidenced by the creation of an Athena Swan Committee in 2016-17. The gender breakdown by level is detailed in Table 2.1-2.2.

Table 2.1 Gender at Assistant and Associate level

Assistant professor		Associate professor	
F	M	F	M
5.8	8	6	8
42 %	58%	43%	57%

The data show nearing levels of parity at the assistant and associate levels. Given the size of staff numbers at each level, any promotions/departures/appointments could significantly alter the current balance in either direction. SPIR continues to monitor this balance closely.

Table 2.2 Gender at Professor level

Census date		1 August 2020	
F	M	F	M
1	13.3	3	12.5
7%	93%	19%	81%

The data at professor level is given at the census date and one day afterwards. The former could give a misleading impression of the School's efforts to support women over the last seven years. One female colleague (Sargisson) was promoted, and another (Neundorf) was offered a promotion in the last cycle. In addition, SPIR also made an external hire at professor level (Testa). The School nevertheless lost four talented professors, one via retirement (Sargisson) and three whose success

Table 2.4 EDI-focused improvements

Challenge	Response
Lack of discussion, strategy, accountability	Created or enhanced channels (e.g. PRP process) to openly discuss/support EDI, developed a dialogue around EDI and research culture (e.g. Away Days/Training). Ensured school representative and chair on Faculty of Social Sciences EDI Group.
Low numbers of women, minority academics within the profession	Signalled interest in applications from underrepresented groups and highlighted flexible working arrangements in job adverts. Committed to applying for reconfirmation of Athena Swan Bronze and planning application for silver award.

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Low numbers of women, minority academics within the profession	Signalled interest in applications from underrepresented groups and highlighted flexible working arrangements in job adverts. Committed to applying for reconfirmation of Athena Swan Bronze and planning application for silver award.

2.5 Research students

SPIR has successfully attracted and supported a diverse post-graduate research community. The School has overseen 84.81 PhD students since 2014, all of whom have been based in at least one research centre/institute. Only five have withdrawn since joining (6%).

As detailed in Table 2.5, the PhD community (based on awarded degrees per year) reflects significant levels of diversity in terms of gender and ethnicity. In 2018/19, for example, 55.2% of research students were women and 38.7% were ethnic minorities, which reflects the School's commitment to EDI in the application process.

3. Immature Research Environment

- Significant negative predictor of GPA (β = -.438).
- Characterised by descriptions of how the units were trying to encourage their staff to engage in research.
- Lots of examples given of things which would be considered completely routine in an environment where research is central to the institution's work.
- Wrexham Glyndŵr University Computer Science and Informatics statement (topic proportion 0.327): "Data from October 2020 indicates that 38% of the 13 members of academic staff associated with UoA11 have a doctoral qualification", "An encouraging sign is that 38% of UoA11 staff are studying towards a doctorate."

3. Immature Research Environment

- Bedfordshire Business and Management Studies statement (topic proportion 0.362): “Staff members are strongly encouraged to attend international conferences and present their research results”, and staff “are allocated dedicated research time as part of their workload”.
- Newman University’s Sport and Exercise Sciences, Leisure and Tourism statement (topic proportion 0.360) noted that “Visiting Professor [anonymised] has produced a manuscript currently in review in the European Respiratory Journal Open”
- Statements with high loadings on the immature research environment topic had lots of use of the phrase “research-active”, and typically gave many examples of conferences staff have attended during the assessment period.

4. Staff Ways of Working

- Significant negative predictor of GPA (β = -.057)
- Characteristic words: work, school, teaching, group, members, part, years.
- Characterised by concrete descriptions of working practices, sometimes in extreme detail.
- University of St Andrews's Economics and Econometrics statement (topic proportion 0.255): "The HoS considers applications [for sabbatical leave] in relation to the general workload allocation process and, if there are doubts about the feasibility of accommodating all applications, the HoS consults a panel of senior colleagues."

5. REF-focused Research Strategy

- Significant negative predictor of GPA (β = -.054)
- Characteristic words: UoA, REF, UoAs, section, cycle, submitted.
- Characterised by giving the appearance that research strategy is organised around the REF.
- Work is done by “UoAs” not “Departments”, budgets are assigned to “UoAs” not “Centres” or “Institutes” etc.

Institution: University of Winchester

Unit of Assessment: 28 (History)

1. Unit context and structure, research and impact strategy

1. The Unit

The period since REF 2014 for the History UoA at Winchester has been one of both building on our strengths and expanding our horizons through the achievement of several strategic aims, with expansion in personnel and a greater diversification of the chronological, methodological and geographical expertise contained within the UoA. The UoA achieved an enhanced structuring of research through the creation of a third research centre; together our centres have coordinated and supported the expanding community of researchers. Two further complementary trends are also hallmarks of the unit: the strengthening of links with, and deeper embedding of the unit within, the historical and heritage communities of Winchester, Hampshire and the South Coast; and the greater global reach of the research of the unit, as seen in, for example, the creation of a number of research networks spanning multiple continents. All these trends, evidence of the vitality of the unit, are demonstrated in the variety of the outputs submitted to this assessment, impact, discussed here and in the Impact Case Studies (ICS), and the vibrant and sustainable research environment evidenced below.

1.1. Unit context

There has been a significant increase in the staff submitted to this REF, part of a strategic aim set out in the 2015 UoA research strategy established after a review of the 2014 submission. In 2014 there were 11 staff submitted (up from 8 in 2008); the 2015 strategy set out an increase to 16 FTE by 2020. This target has been exceeded, with 18 Category A staff (17.75 FTE) submitted, an increase of 61%.

The History UoA sits within the department of History, which also includes a separate programme for Classical Studies, comprising three staff (2.75 FTE), who are fully integrated into the department in both teaching and research. Research is primarily grouped around three research centres which, though two are explicitly interdisciplinary and include staff from other UoAs, are primarily convened by historians and funded through History UoA allocations. They are the Centre for Medieval and Renaissance Research (CMRR), the Modern History Research Centre (MHRC), and the Wessex Centre for History and Archaeology. These reflect the UoA's strengths in medieval British and European history, modern European and global history, and its long-standing interest in local history, heritage and community groups. A fourth centre, that of Gender Studies, sits outside the department but four of the five co-convenors since 2014 have been historians and it also reflects an interdisciplinary research strength of UoA 28. All four centres are currently convened by one or more historians, and all historians are involved in one or more centres.

As explained within the Institutional Environment statement (REF 5a, 4.1), in 2018-19 and 2019-20 the UoA had a devolved budget. Internal bids are scrutinised by a UoA working group chaired by the UoA lead to ensure vitality and sustainability in the context of an extended staff base. Bids need approval by the whole working group to ensure fairness and equality, and then are subject to the approval of the university-level Research and Knowledge Exchange (RKE) grants committee. Prior to 2018-19, bids were made by individuals within the UoA, scrutinised by the UoA Lead, and then sent to RKE grants committee for approval. No History bid has been rejected by that committee in this cycle under either system, and the quality control has ensured success in the strategic aims of the UoA over the cycle.

1.2 Past and Present strategies: Overview

The History submission for REF 2014 committed to a number of ongoing strategies, as well as three new strategic aims for the period 2014 to 2020. Following a review of that REF submission, the Unit drew up a revised research strategy in 2015, agreed by all members of the Unit, and adding the key target relating to the renewal and expansion of the Unit in terms of staffing as part of a strategy to expand, diversify and internationalize new areas of research and

Institution: University College London (UCL)

Unit of Assessment: 23 (Education)

1. Unit context and structure, research and impact strategy

1.1 Overview

Mission and vision

1.1.1 Our research mission is to inspire and nurture excellence in education and social research, and is underpinned by a strong commitment to social justice. We want our research to improve lives by enhancing educational access, experiences and outcomes, and by promoting education as a means of addressing national and international societal challenges. Integral to our mission is the enthusing and engagement of our staff, students and partners in shaping education and social research across the world. Our aim is to be a beacon of excellence and a global resource of expertise and evidence for policy-makers, practitioners and the wider public.

1.1.2 Our Unit is highly distinctive in its scale, scope and impact. We have a broad social scientific understanding of 'education', attending to its interdependencies with other social domains. This is reflected in the span of our research across education, professional formation and lifelong learning, children and families, psychology and special needs education, health and well-being, art and culture, international development, digital technologies, and work and labour markets.

1.1.3 The Unit's research strategy prioritises research distinction, including through: innovation; advances in and through interdisciplinarity; furthering research-informed policy, practice and public debate; and combining these features to enhance research impact. We embrace a variety of methodologies, disciplinary perspectives, ideas and networks, fostering a vibrant and sustainable environment based on the ethos of inclusion, collegiality and opportunity. Sharing wisdom, knowledge and experience, our diverse community and inclusive approach allow everyone space to develop and flourish.

1.1.4 We continue to build our research intensity whilst maintaining scale and breadth, and to extend our outward-facing research engagement to have a positive influence on the development of individuals, institutions and societies. We are proud to contribute significantly to the UK's considerable portfolio of world-leading research on and for education. This includes our support for the foundation disciplines (sociology, psychology, history and philosophy) and retention of important areas of research specialism such as museum education and music education. We are conscious that our size brings responsibilities in relation to developing collaborative and productive relationships with partners and stakeholders, whilst also promoting the use of robust evidence to inform critique and propose solutions.

Size and shape

'Unit'

1.1.5 Our submission encompasses 353 academic staff (FTE= 317.02), which compares with 227.2 FTE submitted in REF2014. The UCL Institute of Education (IOE) comprises the major part of our 'Unit' (N= 338, FTE= 303.12). This is augmented through our collaboration with UCL's Research Department of Medical Education (N= 14, FTE= 13.1) and UCL's Department of Science and Technology Studies (N= 1, FTE= 0.8).

1.1.6 The Unit comprises seven departments (six in the IOE and one from UCL Medical School), which together host 40 research centres. As well as diverse areas of education and

6. Exemplification of Strategy and Processes

- Significant positive predictor of GPA (β = .117)
- Characteristic words: e.g., including, funding, supported, grant, PGRs, impact, awards.
- Topic captured the use of examples of how strategy had been implemented in practice.
- Example: Nottingham's Geography & Environmental Studies statement (topic proportion 0.278).

Principle led to these actions

Strategic principle

1.4. Enabling and Facilitating Impact

Enabling and increasing impact is integrated into the School's Research Strategy as we strongly believe that impact should be embedded within all stages of the research process. To support this, structures to enhance impact have been overhauled since REF2014, including the appointment of an Impact Officer (**Snelling**), who assists with all Impact work in the School, and a School Impact Coordinator (**French**), who oversees the REF Impact submission. This is in addition to the Faculty Impact Officer and Institutional support (IS-2.2). The School's Impact Roadmap outlines mechanisms to establish, deliver and review impact, including the utilisation of Institutional opportunities such as the Faculty of Social Science ESRC Impact Accelerator Account. To date, 31% of these funds have been won by Geography staff (c.£630,000). In addition, the new Institutional Institute of Policy and Engagement has helped fund pump-priming engagement work (e.g. **Seymour**); fund high-level policy relevant talks (e.g. **Hall** at Asia House and Chatham House) and aid development of policy briefs (e.g. **McGowan** on water management in the Red River, **French** on indebtedness and financial exclusion).

These actions led to these impact

7. Industrial Partners and Funding

- Significant positive predictor of GPA (β = .068)
- Characteristic words: award, awards, industry, society, data, international
- Focused on external funding and industrial partnerships:
- Imperial College London Chemistry (topic proportion 0.252): “Collaborations with industry include GSK and Pfizer”, “members are involved in industry collaborations e.g. a £3.2M EPSRC BP Prosperity Partnership”.
- Proportion of words from this topic strongly correlated with research funding, r = .642.

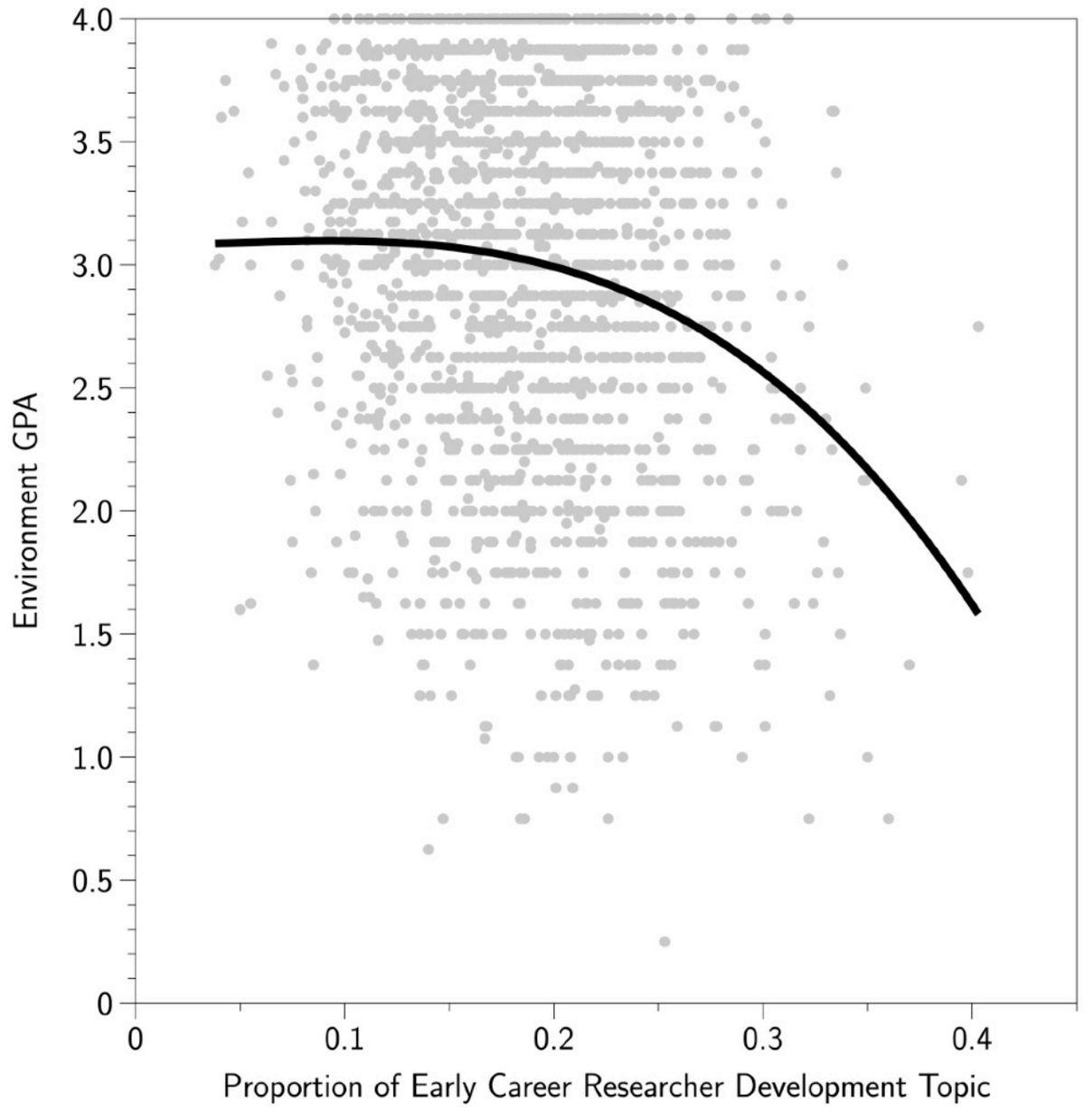
7. Industrial Partners and Funding

But this topic predicted GPA over and above funding:

- In a regression predicting GPA with just two predictors, grant income per fte and proportion of statement from this topic, the betas were $\beta = .476$ and $\beta = .255$.
- So how you talk about your research funding (how it contributes to your strategy etc) is >50% as important as actually having it.

8. Early Career Researcher Development

- Significant negative predictor of GPA (β = -.112)
- But possibly a non-linear relationship: too much is bad.
- Characteristic words: development, develop, support, research, researchers, strategy, strategic, work, working, funding.



8. Early Career Researcher Development

- Big range in the extent to which statements talked about early career researcher development: from 0.038 to 0.403.
- Statements with high proportions from this topic talked often referred to the Concordat to Support the Development of Researchers.
- Example: Queen Margaret University Edinburgh Sociology (topic proportion 0.360): “[we] support researchers in exploring and preparing for a diversity of careers, for example, through the use of mentors and careers professionals, training, and secondment”.

Talking About Disciplines

- In addition to these 8 general topics, we looked at within-UoA associations with the relevant disciplinary topic.
- If you are an economics department, does how much you talk about economics in your environment statement predict the perceived quality of your research environment?
- Yes it does, although this varies by discipline:
  - Economics & Econometrics: $r = +0.702$
  - Sport and Exercise Sciences, Leisure and Tourism: $r = -0.116$
- In general these relationships highest for the life sciences (mean $r = 0.472$), middling for physical and social sciences (mean $rs = .217, .172$) and lowest for arts and humanities (mean $r = .093$).
- But confidently using disciplinary specific language seems to be a signal of a high-quality research environment.

Causality?

- Need to be careful about assuming causality.
- Obviously these are just correlations: we couldn’t run an experiment!
- Nevertheless, theories of judgement and decision making would seem to suggest that rapid judgements are often influenced by prototypical cases and exemplars.

Advice

- If you have the task of writing an RAE statement, I think this research can help you.
- In two ways:
  - Eight specific factors to bear in mind when writing/reviewing your statements.
  - Some advice on what to read before you start writing.

Factors to Think About

1. Avoid giving the impression that you have an immature research environment by talking about things that might be perceived as trivial: e.g., academics going to conferences, writing journal articles, having PhD students, saying that colleagues are “research-active” etc.

2. Do not use RAE-associated language to describe your research structures: you work in disciplines, not UoAs; your strategy is about doing better research, not achieving higher RAE outcomes.

3. Do not give tedious details of the ways in which staff related processes operate (“Members who have held a substantial administrative role are entitled to an extra semester of research leave”).

Factors to Think About

4. Talk about how you support your ECRs, but not too much! (Surprising finding? Maybe talking about ECRs gives the impression you don't have many senior staff? Maybe it's just a waste of space?)
5. Talk about Career Development and EDI a little bit, but not too much! (Surprising finding? Maybe talking about EDI issues a lot gives the impression you have particular problems with equity and diversity?)
6. Give lots of concrete examples of what your research strategy has led to ("We aim to develop interdisciplinary approaches to XX and as a result ran conference YY in collaboration with ZZ, which led to a new collaboration AA and a grant from BB").

Factors to Think About

7. Mention research funding and industrial partners (interpreted broadly) as much as possible, especially what it's led to. Having research funding isn't enough: you have to use your funding to evidence a successful research strategy/environment as well as what it's led to.

8. Talk about your research contributions to your discipline(s), using disciplinary specific language, as much as possible. Sometimes we're advised to make language accessible to a broad audience: this may be bad advice if your goal is to convince academics that your have a world-class research environment.

Concrete Reading Advice

- Possibly the most useful contribution of this research for people who have to write RAE environment statements is the dataset that goes with the paper.
- This allows you to sort all REF2021 statements by topic weightings and:
  - Read the most characteristic statements for each topic.
  - Filter by discipline.

Concrete Reading Advice

If I were writing a RAE environment statement I would:

- Read the top two or three ‘immature research environments’ statements, and the bottom two or three.
- Read the top and bottom two or three ‘immature research environment’ statements *from my discipline.*
- Read the top and bottom two or three statements characterised by exemplification of strategy and processes.
- Read the top and bottom two or three statements characterised by exemplification of strategy and processes *from my discipline.*
- Read the top and bottom two or three statements from my discipline that used lots of disciplinary language and look at how they did it.

Links

- Manuscript: https://doi.org/10.1093/reseval/rvae010
- Dataset: https://doi.org/10.17028/rd.lboro.23912499.v1
- REF2021 Environment Database: https://results2021.ref.ac.uk/environment

Thanks!

- Paper in press in *Research Evaluation.*
- Inglis, M., Gadd, E., & Stokoe, E. (in press). What is a high-quality research environment? Evidence from the UK's Research Excellence Framework. *Research Evaluation.*
- Email: m.j.inglis@lboro.ac.uk
- Twitter: @mjinglis
- Web: mcg.lboro.ac.uk/mji